ORIGINAL ARTICLE

ASSESSMENT OF FIRST AID KNOWLEDGE AMONG MEDICAL AND NON-MEDICAL UNIVERSITY STUDENTS

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ABSTRACT

INTRODUCTION: Cardiovascular diseases and the associated sudden cardiac arrest (SCA) are the main cause of death in Poland and around the world. The immediate reaction of bystanders to the event increases the survivor's chances of survival. The aim of this study was to assess the knowledge and declared skills of medical and non-medical students regarding the methods and techniques of first aid.

METHODS: During the period April–May 2017 at Collegium Mazovia Innovative University in Siedlce (Poland), a study was carried out using the anonymous questionnaire of author's design on the principles of first aid. The survey was addressed to 200 part-time students of medical (medical emergency, nursing, physiotherapy) and non-medical (finance and construction) degrees.

RESULTS: There were statistically significant differences between the self-assessment of knowledge about first aid and the field of study (p < 0.001). The question "How do you evaluate your knowledge about first aid" by comparing the medical, financial and construction fields of study showed that a level assessed as very good was indicated by: 38% vs. 7% vs. 8% students, respectively. A good level was indicated by 51% vs. 37% vs. 24% of students respectively while an average level was shown by: 11% vs. 49% vs. 64% of students respectively. In addition, a lack of knowledge was displayed by: 0% vs. 7% vs. 4% of students, respectively.

CONCLUSIONS: Our data indicates that: (1) the state of non-medical students' knowledge concerning first aid was unsatisfactory; (2) it is advisable to promote knowledge about current CPR guidelines in the non-medical student population.

KEY WORDS: first aid, education, CPR, students, knowledge

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INTRODUCTION

Cardiovascular diseases and the associated sudden cardiac arrest (SCA) are the main cause of death in Poland and around the world. Moreover, 80% of cases occur in an out-of-hospital setting for SCA. The survival rate in out-of-hospital SCA is about 2–10% [1].

According to the Polish Law on State Emergency Medical Services, first aid is a "set of actions taken to rescue a person in a state of emergency health risk, performed by a person at the location of an accident, including the use of medical devices and medicinal products made available to the general public" [2].

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Public knowledge about first aid and cardiopulmonary resuscitation (CPR) is so important as one never knows when they may find themselves in such a situation. The immediate reaction of bystanders to the event increases the survivor's chances of survival. Frequent bystanders of out-of-hospital SCA are, among others, drivers who are often the first to be in a position to provide first aid before medical treatment arrives. However, due to a lack of knowledge or indifference, they do not provide it directly, only by notifying the appropriate services. WHO and the European Red Cross strive to ensure that all participants in driving courses are trained in first aid. Health care professionals, students of medical faculties (including medicine, emergency medicine, nursing) gain and constantly improve their qualifications in the field of CPR.

Moreover, the police receive medical training in the field of gunshot wounds, for example Non-medical students, as well as the rest of society, are obliged to provide first aid. The European Resuscitation Council (ERC) guideline have been updated, among others in order to simplify the algorithms of activities, which for laymen is important in overcoming the fear of taking action in a rescue situation. In the current ERC guidelines set in 2015, particular attention is paid to the quality of chest compressions, the minimization of pressure gaps and the use of an Automated External Defibrillator (AED) as soon as possible. Dissemination of this knowledge to the public may contribute to the reduction of mortality rates. Art. 162.§ 1 of the Polish Penal Code emphasizes the obligation to help people who face danger their health and life under penalty of punishment. The aim of the study was to assess the knowledge and declared skills of medical and non-medical students on the methods and techniques of first aid.

MATERIAL AND METHODS

In the period April–May 2017 at the Collegium Mazovia Innovative University in Siedlce (Poland), a study was carried out using an anonymous questionnaire of the authors' design on the principles of first aid. The survey was addressed to 200 part-time students of medical (medical emergency, nursing, physiotherapy) and non-medical (financial and construction) degrees. There were 65 males and 135 females. The survey consisted of a questionnaire and 12 closed single-choice questions. Questions for the questionnaire were arranged on the basis of the 2015 ERC guidelines.

Statistical analysis

The results of quantitative variables were presented as average values ± standard deviation. Qualitative variables (age, sex) were presented as the quantity (n) and percentage values of the whole group (%) while proportions within groups were assessed with a Chi-squared test. Statistica 13.1 software (StatSoft Inc., Tulsa, OK) was used in the statistical analysis. $P < 0.05$ was adopted as the level of statistical significance.

RESULTS

The study included 100 medical students with an average age of 30 ± 7 years, and 71 students of whom were working professionally. Construction students numbered 25 with their average age being 27 ± 6 years of whom 20 (80%) were working professionally. Students of financial studies numbered 75 with the average age of 26 ± 6 years of whom 51 (68%) were working professionally. There were no statistically significant differences between the fields of study in employment (p = 0.491).

There were, however, statistically significant differences between the self-assessment of knowledge about first aid and the field of study (p < 0.001). The question "How do you evaluate your knowledge about first aid" by comparing the medical, financial and construction fields of study showed that a level assessed as very good was indicated by: 38% vs. 7% vs. 8% students, respectively. A good level was indicated by 51% vs. 37% vs. 24% of students respectively while an average level was shown by: 11% vs. 49% vs. 64% of students respectively. In addition, a lack of knowledge was displayed by: 0% vs. 7% vs. 4% of students, respectively (Fig. 1).

Another question the students answered was: "Have you ever found a situation where first aid should be given?". Comparing medical, financial and construction studies, an affirmative answer was given by 48% vs. 20% vs. 52% of students, respectively, p = 0.003.

The next question was "Would you have a problem with first aid?" Comparing medical, financial and construction studies, indicated an affirmative answer in 19% vs. 52% vs. 44% of students, respectively, p < 0.001.

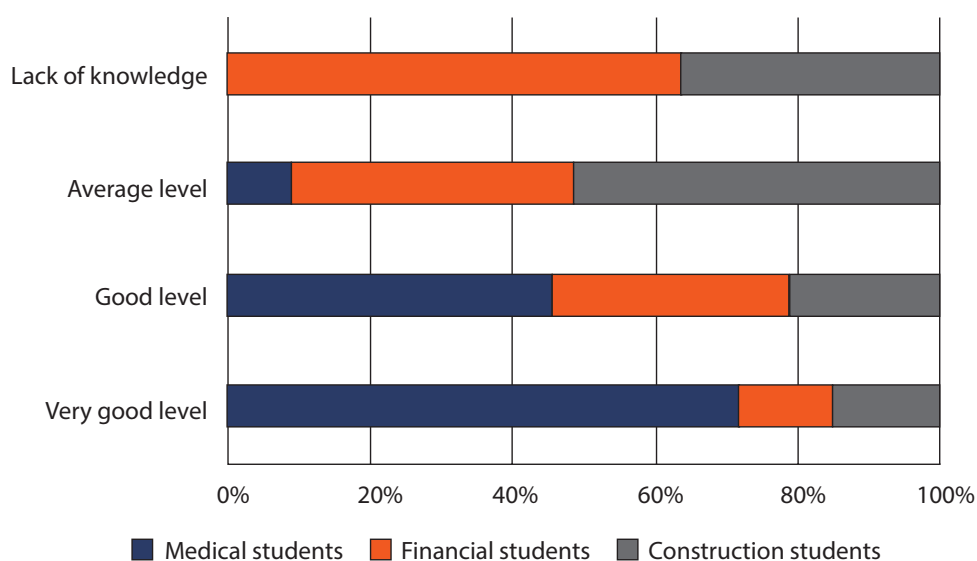**FIGURE 1.** The question "How do you evaluate your knowledge about first aid" by comparing medical, financial and construction studies

Following this they were asked "What is the recommended number of breaths and chest compressions when resuscitating an adult?". Comparing medical, financial and construction studies, the correct answer was given in 97% vs. 84% vs. 84%, of students, respectively, p = 0.033.

Subsequently, the students were questioned on the number of inhalations and chest compressions during first aid in children. Comparing medical, financial and construction studies, the answer was found to be correct in 93% vs. 79% vs. 60% of students, respectively, p < 0.001.

Regarding the question "Have you ever participated in phantom practical classes on providing first aid?". Comparing medical, financial and construction studies, an affirmative answer was provided in 87% vs. 73% vs. 56% of students, respectively, p = 0.005.

The penultimate question in the questionnaire answered by students of medical, financial and construction fields was "What number you would call in the first instance as a witness of a traffic accident", p = 0.080. Comparing medical, financial and construction studies, it was shown that 112 would have been called by: 71% vs. 77% vs. 48% of students, respectively. The number 999 would have been called by: 20% vs. 11% vs. 36% of students, respectively.

The last question was: "Do you know how to give first aid when encountering choking by an adult?".

Comparing medical, financial and construction studies, an affirmative answer of 93% vs. 60% vs. 60% of students, respectively, p < 0.001.

DISCUSSION

There are many studies in the available literature describing the level of knowledge of health care professionals or medical students (nursing [3, 4], medical emergency [5], medicine [6]) in the field of CPR. Similar studies have been carried out among uniformed services (police officers [7], national and voluntary firefighters [8]) and in the general population [9, 10]. There are no current comparative studies based on the ERC guidelines of 2015, using a uniform research tool (questionnaire) among students of various medical and non-medical fields. The authors of the study have made a cross-sectional evaluation of knowledge in the field of first aid among undergraduate medical and post-graduate engineering students. The purpose of the research was to define the demand for training in first aid. The results show how varied the knowledge of medical and non-medical students is. Based on the results of the study, one may state that there is a demand for first aid training among students. CPR includes basic activities that can save someone's life. Exercises on manikins would increase one's knowledge and practical skills during CPR.

In the work of Skitek et al. [11], comparing the state of knowledge in the field of first aid among 393 students of universities of medical and natural sciences, as well as polytechnics, has shown a need for creating a complementary system of first aid education to guarantee a high quality of knowledge in this field. In the cited work, 68% of students of the medical university concerned evaluated their knowledge of the above-mentioned issues as good or very good, and over 30% of people as insufficient. Among the respondents from the university of economics concerned, 69% of students were considered to have insufficient knowledge, and 12% admitted that they did not know the issues of first aid. In most cases, students from the Adam Mickiewicz University, the University of Life Sciences and Poznan University of Technology, displayed insufficient knowledge (53–59%), 32–36% of students were found to have a good level, while 9–11% possessed a knowledge concerning the issues of first aid deemed to be insignificant.

In the work of Strzyżewska et al. [12], the research covered a group of 600 students (humanities, the arts, natural sciences, economic, medical, and technical studies) at universities in the Tri-City conurbation of Gdansk-Gdynia-Sopot (Poland). The study showed that 7% of the analyzed population of students had a high level of knowledge in the field of CPR, more than half of the students had an average level of knowledge, while 41% of students had a low level of knowledge. The highest level of knowledge in the field of CPR was provided by students of the Medical University of Gdansk at 36%.

The results of our own research show that, depending on the field of study, 56–87% of the respondents participated in the first aid training. This result is similar to that of Pietrzyk et al. [13], where 64% of workers in industrial plants participated in the CPR training. In the study Tomaszek et al. [3], the time elapsed since the end of the CPR training course was an important determinant of the decrease in the knowledge of the nursing team.

In the work of Chemperek et al. [14], in a surveyed group of 500 schoolchildren attending secondary general and technical schools and university students it was shown that only 4% of the respondents had their first aid skills rated very highly. 49.4% had them assessed as good, 40.2% as poor and 6.4% as very poor.

In a study by Wojtczak [4], knowledge of nursing in the field of CPR was assessed. When asked about the correct ratio of chest compressions to the number of breaths (30:2), 96% of students answered correctly. The method of diagnosis of the SCA, as indicated by 47% of the respondents, is no pulse in the carotid artery. In addition, 42% reported that it is a lack of consciousness and breath.

This study has some limitations. Firstly, compared to the other studies, our sample was quite small. Secondly, the study was based partly on the self-assessment of knowledge and not on an independent external evaluation.

In conclusion, our data indicates that: (1) the state of non-medical students knowledge concerning first aid was unsatisfactory; (2) it is advisable to promote knowledge about current CPR guidelines in the non-medical student population; (3) the knowledge level of undergraduate health professionals regarding cardiopulmonary resuscitation was insufficient.

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